"BIKMAS"
A BIoinformatics Knowledge MAnagement System

F. Martín-Sánchez, G. H. López-Campos, N. Ibarrola, J. Nogales Pla

Bioinformatics Unit. (BIOTIC). Institute of Health "Carlos III". Madrid, SPAIN.
e-mail: fmartin@isciii.es

Abstract

One of the main objectives of the Bioinformatics Unit (BIOTIC) at the National Institute of Health "Carlos III" is *to facilitate knowledge of new technologies for genetic information processing and its use in the biomedical research and clinical environments.* To achieve this task the unit processes at a daily basis a huge volume of data and information about genomics and bioinformatics that are collected by several methods. As the manual performance of the selection process gave rise to delays, errors, criteria differences depending on the experience of the person who did the task, and a high number of questions to experts; we decided to build a semiautomatic system to assist information management according to unified criteria of information filtering and selection.

Information is retrieved from Internet (e-mail, webcast, distribution lists, debate forums, on-line journals), scientific journals, press, bibliographic sources and biomedical information centers, amongst others. Using several criteria: source, theme, date and quality, Bikmas evaluates, filters, classifies and decides if data have to be eliminated, filed and/or published in different media after being converted into a knowledge item valuable for the unit or for any of its users. Information can be filed in our internet accessible resources database that serves information throughout indexes and search engines developed by the unit. Publication is made in HTML format for the Intranet or the web. Finally, information can be distributed by the unit's mailing list or processed to be included in our electronic newspaper: the "News bulletin on Bioinformatics and Health" – BIOTIC – News".

The system has been developed with an object oriented method in a multiuser network environment. It counts with a relational database were sources of possible interesting information are registered, a knowledge management core that has been trained with case based reasoning and implements the decision making rules to filter, file or select were to publish the information, tools that allow format interchange, an interactive user interface and a database with all the possible exits of the system. The criteria used for filtering are parameters (date, quality, area of interest, source, etc) that can be weighted to implement different work strategies depending on changing priorities of the unit.

BIKMAS facilitates information management allowing any member of the unit, including members without much experience, to perform this task. It also offers an historic archive of already done work that can be statistically analysed to improve selection criteria. We are working in the implementation of the system with an intranet version, automatic conversion of formats, editing tools and assistance for the management of pending task.

This systems is a general system for knowledge management as it can be easily adapted to any other biomedical research environments changing the selection criteria and weights of parameters, and has been designed with open tools.

References:

Persidis A. "Corporate intelligence in biotechnology". DRUG DISCOVERY TODAY 1999 May;4(5):204-208

Matheson NW. " Things to come: postmodern digital knowledge management and medical informatics". J Am Med Inform Assoc. 1995 Mar-Apr;2(2):73-8.

Frisse ME, Braude RM, Florance V. and Fuller S. "Informatics and medical libraries: changing needs and changing roles". Acad Med. 1995 Jan;70(1):30-5.